Complete Summary

GUIDELINE TITLE

Operative vaginal delivery.

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Operative vaginal delivery. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2000 Jun 1. 8 p. (ACOG practice bulletin; no. 17). [42 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Operative vaginal delivery. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 1994 Aug. (ACOG technical bulletin number 196).

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
CONTRAINDICATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

Pregnancy

GUIDELINE CATEGORY

Management
Technology Assessment
Treatment

CLINICAL SPECIALTY

Obstetrics and Gynecology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To address specific controversial issues about the use of forceps and vacuum extractors for operative vaginal delivery and to present the available information on which to base decisions concerning their use

TARGET POPULATION

Pregnant women

INTERVENTIONS AND PRACTICES CONSIDERED

Operative vaginal delivery through use of forceps or vacuum extraction

MAJOR OUTCOMES CONSIDERED

- Rate of successful operative vaginal delivery
- Maternal morbidity
- Neonatal morbidity and mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' (ACOG's) own internal resources were used to conduct a literature search to locate relevant articles published between January 1985 and November 1999. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document.

Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force.

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician-gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A - Recommendations are based on good and consistent scientific evidence.

Level B - Recommendations are based on limited or inconsistent scientific evidence.

Level C - Recommendations are based primarily on consensus and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and sub-specialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (I-III) and levels of recommendations (A-C) are defined at the end of "Major Recommendations."

The following recommendations are based on good and consistent scientific evidence (Level A):

- Both forceps and vacuum extractors are acceptable and safe instruments for operative vaginal delivery. Operator experience should determine which instrument should be used in a particular situation.
- The vacuum extractor is associated with an increased incidence of neonatal cephalohematoma, retinal hemorrhages, and jaundice when compared with forceps delivery.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Operators should attempt to minimize the duration of vacuum application, because cephalohematoma is more likely to occur as the interval increases.

- Midforceps operations should be considered an appropriate procedure to teach and to use under the correct circumstances by an adequately trained individual.
- The incidence of intracranial hemorrhage is highest among infants delivered by cesarean following a failed vacuum or forceps delivery. The combination of vacuum and forceps has a similar incidence of intracranial hemorrhage. Therefore, an operative vaginal delivery should not be attempted when the probability of success is very low.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Operative vaginal delivery is not contraindicated in cases of suspected macrosomia or prolonged labor; however, caution should be used because the risk of shoulder dystocia increases with these conditions.
- Neonatal care providers should be made aware of the mode of delivery in order to observe for potential complications associated with operative vaginal delivery.

Definitions:

Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Levels of Recommendations

Level A - Recommendations are based on good and consistent scientific evidence.

Level B - Recommendations are based on limited or inconsistent scientific evidence.

Level C - Recommendations are based primarily on consensus and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of operative vaginal delivery

POTENTIAL HARMS

- Both forceps delivery and vacuum extraction have been associated with the development of maternal hematomas, and possibly linked to pelvic floor injury.
- Traction achieved with vacuum extraction is substantial (up to 50 lb) and can result in significant fetal injury if misused. The vacuum cup can cause scalp lacerations if torsion is excessive. In addition, separation of the scalp from the underlying structures can lead to cephalohematoma, which is more common in infants delivered by vacuum extractor (14 to 16%) than in those delivered with forceps (2%).
- Other potential neonatal complications associated with vacuum deliveries include intracranial hemorrhage, hyperbilirubinemia, and retinal hemorrhage. Overall, the incidence of serious complications with vacuum extraction is approximately 5%.
- Corneal abrasions and external ocular trauma are more common with forceps delivery than with normal spontaneous delivery and are rare with vacuum extraction unless the cup is inadvertently placed over the eye.
- Studies comparing vacuum extraction to forceps delivery indicate that more maternal morbidity (soft tissue injury, discomfort) occurs with forceps delivery.

CONTRAINDICATIONS

CONTRAINDICATIONS

Under certain circumstances, operative vaginal delivery should be avoided or, at the least, carefully considered in terms of relative maternal and fetal risk. Most authorities consider vacuum extraction inappropriate in pregnancies before 34 weeks of gestation because of the risk of fetal intraventricular hemorrhage. Operative delivery is also contraindicated if a live fetus is known to have a bone demineralization condition (e.g., osteogenesis imperfecta), a bleeding disorder (e.g., alloimmune thrombocytopenia, hemophilia, or von Willebrand's disease) is present, the fetal head is unengaged, or the position of the fetal head is unknown.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.
- Research into the complications of operative vaginal delivery is hampered by a number of potential biases, including the level of experience of the operators, the small numbers of patients studied under similar circumstances, changes in practice and definition, and the inability to achieve statistical power to answer relevant questions.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Operative vaginal delivery. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2000 Jun 1. 8 p. (ACOG practice bulletin; no. 17). [42 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Jun

GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Operative vaginal delivery. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 1994 Aug. (ACOG technical bulletin number 196).

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on September 14, 2004. The information was verified by the guideline developer on December 8, 2004.

COPYRIGHT STATEMENT

Date Modified: 2/14/2005